



U.S. EPA's 2012 Recommended Recreational Water Quality Criteria

Application for Combined Sewer Overflows (CSO's)

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Federal Clean Water Act (CWA)

33 U.S.C. §§ 1251-1388

The CWA's purpose is to maintain chemical, physical, and biological integrity of the Nation's waters through the elimination of discharges of pollutants to surface waters.

The Clean Water Act (CWA) also has the goal of attaining water quality that

(1) achieves protection and propagation of fish, shellfish, and wildlife (fishable), and

(2) allows for recreation in and on the water where attainable (swimmable).

Core Components of Water Quality Standards

Water quality standards consist of three core components:

- Designated uses of a water body;
- Criteria (numeric and narrative) to protect designated uses; and
- Antidegradation requirements to protect existing uses and high quality/high value waters.

State water quality standards must be approved by U.S. EPA

Surface water use designations; multiple uses

327 IAC 2-1-3

Sec. 3. (a) The following water uses are designated by the water pollution control board:

(1) Except as provided in subsection (c) [*wet weather limited use subcategory*], surface waters of the state are designated for full body contact recreation as provided in section 6(d) of this rule.

Minimum surface water quality standards

327 IAC 2-1-6

(d) This subsection establishes bacteriological quality for recreational uses during the recreational season as follows:

(1) The recreational season is defined as the months of April through October, inclusive.

(2) In addition to subsection (a), the criteria in this subsection are to be used to do the following:

(A) Evaluate waters for full body contact recreational uses.

(B) Establish wastewater treatment requirements.

(C) Establish effluent limits during the recreational season.

Minimum surface water quality standards

327 IAC 2-1-6

(3) For full body contact recreational uses, E. coli bacteria shall not exceed the following:

(A) One hundred twenty-five (125) per one hundred (100) milliliters as a geometric mean based on not less than five (5) samples equally spaced over a thirty (30) day period.

(B) Two hundred thirty-five (235) per one hundred (100) milliliters in any one (1) sample in a thirty (30) day period, except that in cases where there are at least ten (10) samples at a given site, up to ten percent (10%) of the samples may exceed two hundred thirty-five (235) cfu or MPN per one hundred (100) milliliters where the:

(i) E. coli exceedances are incidental and attributable solely to E. coli resulting from the discharge of treated wastewater from a wastewater treatment plant as defined at IC 13-11-2-258; and

(ii) criterion in clause (A) is met.

EPA's §304(a) 2012 Recommended

Table 1. Recommended 2012 RWQC.

Criteria Elements	Estimated Illness Rate (NGI): 36 per 1,000 primary contact recreators		OR	Estimated Illness Rate (NGI): 32 per 1,000 primary contact recreators	
	Magnitude			Magnitude	
Indicator	GM (cfu/100 mL) ^a	STV (cfu/100 mL) ^a		GM (cfu/100 mL) ^a	STV (cfu/100 mL) ^a
Enterococci – marine and fresh	35	130		30	110
OR					
<i>E. coli</i> – fresh	126	410		100	320
Duration and Frequency: The waterbody GM should not be greater than the selected GM magnitude in any 30-day interval. There should not be greater than a ten percent excursion frequency of the selected STV magnitude in the same 30-day interval.					

^a EPA recommends using EPA Method 1600 (U.S. EPA, 2002a) to measure culturable enterococci, or another equivalent method that measures culturable enterococci and using EPA Method 1603 (U.S. EPA, 2002b) to measure culturable *E. coli*, or any other equivalent method that measures culturable *E. coli*.

From U.S. EPA's Office of Water Fact Sheet: 2012 Recreational Water Quality Criteria

The RWQC consist of three components: magnitude, duration and frequency. The magnitude of the bacterial indicators are described by both a geometric mean (GM) and a statistical threshold value (STV) for the bacteria samples. The STV approximates the 90th percentile of the water quality distribution and is intended to be a value that should not be exceeded by more than 10 percent of the samples taken.



Criteria Magnitude, Duration, and Frequency for CWA Purposes

EPA's 2012 RWQC recommendations to protect primary contact recreation consist of a magnitude, duration, and frequency of exceedance.

- Magnitude: GM and the STV (regardless of the sample size).
- Duration and frequency: The waterbody GM should not be greater than the selected GM magnitude in any 30-day interval. There should not be greater than a ten percent excursion frequency of the selected STV magnitude in the same 30-day interval.

Because the designated use protected by this criterion is primary contact recreation, EPA believes that a shorter duration (i.e., 30 days) coupled with limited excursions above the STV, allows for the detection of transient fluctuations in water quality in a timely manner.

National Pollutant Discharge Elimination System (NPDES) permit limitations

NPDES permits regulate, by the inclusion of discharge limitations, direct discharges from “point sources” to surface waters, including discharges from wastewater treatment plants, combined sewer systems, and stormwater run-off from a variety of sources.

Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality (40 CFR 122.4(d)(1)(i)).

Application of State WQS based on EPA's 2012 RWQC for NPDES Permitting

For non-continuous or episodic discharges, 40 CFR 122.45(e) requires WQBELs to reflect the frequency of discharge; total mass; maximum discharge rate; and prohibition or limitation of specified pollutants by mass, concentration, or other measure. Wet weather-related events influence episodic discharges such as combined sewer overflows (CSO).

EPA's 1994 CSO Policy also recommends WQS review and revision, as appropriate, to reflect the site-specific wet weather impacts of CSOs. In conjunction with an approved long-term CSO control plan, a WQS review could involve a use attainability analysis (40 CFR 131.10(g)) and subsequent modification of a designated use.

Protecting the Designated Use

Attaining the Goal of Swimmable Waters

- The current criteria and 2012 recommendation are in-stream criteria that provide similar levels of protection (30 day GM of 125 vs. 126).
- Untreated CSOs cause and contribute to high in-stream levels of *E. coli* – samples results that are “too numerous to count” (TNTC) are conservatively estimated to have between 60,000-70,000 colonies.
- The STV is applied to the number of samples, not the (estimated) percent of time of a CSO. 90 percent of representative, in-stream samples must be below 410 to demonstrate compliance.
- Even with a longer (90 day) duration, it would be difficult to meet the 410 when untreated CSOs are part of the stream flow. A longer duration may miss certain spikes and therefore be less protective of the designated use.

Existing CSO Compliance Mechanisms

Indiana had 109 CSO communities

18 full separation communities – no overflows, WQC met.

28 events per year/percent capture communities – long term control plans consider high cost of eliminating all CSOs and recognizes some limited number of overflows may still occur – complete use attainability analysis (UAA) and, if approved, wet weather limited use will apply.

63 design storm communities – long term control plans establish treatment of the 10 year, 1 hour storm while the agency understands that storms of a greater magnitude may result in the release of some less treated or untreated flows. The agency exercises its enforcement discretion, as outlined in NPD 0-16, when evaluating compliance.

Note: Few other states have thought through post LTCP CSO compliance. While OH & WI have adopted the 2012 RWQQ, they have not evaluated it for determining CSO compliance.

Questions?

